PICSTART Plus

Development Design Tool Package

Microchip's PICSTART Plus DDTP (Development Design Tool Package) is a complete development tool for all members of the PIC microcontroller family.

A compact box with a lot inside: this is how Microchip likes to describe the development package they offer to designers working with the PIC microcontroller family. The new version of PICSTART Plus includes the PICC Lite C compiler, which is also suitable for beginners and programmers not already familiar with C. This compiler supports the popular PIC16F84(A) flash microcontroller, a sample of which is also included in the kit.

The development package is distinguished by its relatively low price (199 USD) and its flexibility. As a program development tool, it is suitable for all 8-bit Microchip microcontrollers, which encompasses no fewer than 105 types including the widely used PIC12CXX, PIC16CXX and PIC17CXX microcontrollers. The main component of the package is the MBLAB integrated development environment, which contains all the tools needed for editing, simulation and compilation.

Let's open the box and have a closer look at what it has to offer. The first thing we notice is that Microchip have filled the box with a considerable amount of paper, in the form of several user's manuals. There are both full and condensed manuals for the complete development package, as well as a manual of more than 200 pages for the assembler (including the linker and librarian). On top of these there is a quick reference card (all naturally in English). Contrary to usual practice, you should not just return the manuals to the box to never to be seen again; a more or less thorough perusal of this literature could certainly prove advantageous!

The software is contained on four CD-ROMs and consists of:

– MPLAB IDE V5.30
– CD-ROM Microchip Technical Library (parts 1 & 2)
– PICC Lite

You should verify that the software in the box is at the current version level, since the programs are updated fairly often. A glance at the Microchip web site (www.microchip.com) will show you the current versions of the software. For its part, PICC can run under Windows 3.1 or higher.

The development package is rounded out by a small programming adapter with a ZIF socket, a PIC16F84A, a serial interface cable and a mains adapter (with a UK plug).

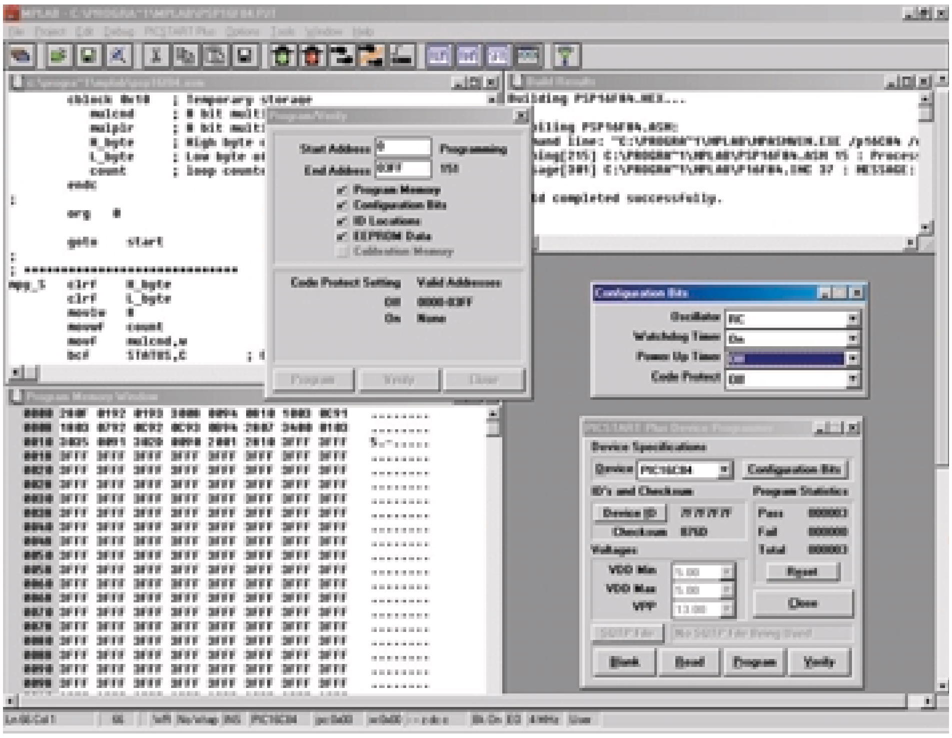
MPLAB development environment

MPLAB allows you to develop microcontroller programs by working with a user interface that supports the developer with configurable tools and status information for editing and troubleshooting. The MPLAB integrated development environment (IDE) encompasses the following components:

– A project manager that manages all the programs belonging to the IDE.

– An editor for generating and editing text files (source texts and linker scripts).

– An assembler to generate assembler files from source texts without requiring the user to leave the development environment. The assembler is complemented by a linker, which produces the final application by connecting together relocatable modules generated by the assembler or the compiler. The MP librarian manages software modules produced by the software developer so they can be reused.



– A C compiler for C17 and C18 microcontrollers.

– A simulator that simulates the program code according to the I/O of the microcontroller. The simulator can handle not only the core functions of the PIC microcontroller family, but also most of the peripheral functions.

– An emulator, which together with some supplementary hardware can substitute for the programmed PIC microcontroller in real time, with or without a target system.

– A Pro Mate II programmer.

Installing the MPLAB IDE is child's play. After the CD-ROM has been inserted in the drive and the autostart dialogue has appeared, just press the *Install MPLAB IDE v5.xx* button. In the options box, you should select at least MPLAB IDE and MPASM/MPLINK, and the simulator and help files are also quite useful. A full installation requires just under 30 MB of hard disk capacity.

PICC Lite C compiler

Now we come to the PICC Lite C compiler. Installation is just as easy as for the IDE, but now we have a job for the printer, since there is no printed manual for the complier in the box. This means that it is not only recommended but practically essential to transfer the 228-page PDF manual to paper, since you are repeatedly referred to the manual when using PICC Lite. The electronic manual is very well put together and provides numerous examples to help you familiarise yourself with the secrets of all the compiler's functions. Consequently, even beginners to this programming language can easily work with PICC Lite.

Although PICC Lite is a third-party product, it is exceptionally well integrated into the IDE. However, since this compiler is suitable for only one specific type of microcontroller, it is only useful for an introduction to high-level-language programming for PIC microcontrollers. If you frequently have to deal with other types of PIC microcontrollers, you will have to rely on *otools*. If you wish to receive a list of available third-party tools, send an e-mail to listserv@mail.microchip.com with the message *subscribe otools erika mustermann*. This list may well include C compilers for other types of PIC microcontrollers.

With PICSTART Plus, you have a complete development tool for an enormously popular microcontroller family (whose use is by no means limited to *Elektor Electronics* projects). Consequently, at a price of less than £200 this package is quite economical in comparison with similar products — and with a bit of luck you might even obtain it for free (see the sidebar)!

(017054-1)

Raffle!

Napier Partnership Ltd., the Press Relations and Advertising agency for Arizona Microchip, are raffling off several PICSTART Plus kits. All you have to do is provide your name and address by telephone, fax or e-mail to Napier Partnership Ltd. at:

Tel.: (+44) (0)1243 513434
Fax: (+44) (0)1243 513435
e-mail: ukcompetition@napier.co.uk
(Contact person: Veronica Batchelor)

With a bit of luck, you could be the proud owner of this interesting development package!